SIEMENS

POWERMOBIL/ARCOSKOP

SP

Installation- and Setting Instructions

Area dose product measurement device

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Safety information

When performing service work and tests, adhere to the general safety instructions, print number RA0-000.12.40 contained in Register 1 of the system binder, the product-specific safety information in the POWERMOBIL respectively ARCOSKOP as well as the safety information in the ARTD. After completing all service work and reattaching the covers, perform the protective conductor measurement as specified in ARTD-002.731.17.

Documents required

POWERMOBIL respectively ARCOSKOP system binder including the general safety information and the service instructions.

If there is a laser targeting device: Setting and adjustment instructions for the Laser Targeting Device.

Parts required

Installation kit: Area dose product measurement device

Measurement and auxiliary devices required

Service PC	
Service PC-Host interface cable	99 00 440 RE999
POWERMOBIL resp. ARCOSKOP	
Protective conductor test meter	44 15 899 RV090
or	
Bender Safety tester	
PTW-DALI dose measurement device	(no longer listed in the ARTD)
or	
PTW-NOMEX dose measurement device	97 08 637 Y0388
or	
PTW-DIADOS dose measurement device	97 17 612 Y0388
Center cross	96 60 051 RE999

Tools required

Standard service kit (refer to ARTD, Part 3)

1 set of Allen keys

Installation

- Disconnect the POWERMOBIL respectively ARCOSKOP from the mains power.
- Remove the POWERPHOS cover.

Without the laser targeting device:

- Attach the Area dose product measurement device to the POWERPHOS using the screws included in the packaging.
- Connect the interface cable already integrated in the cable harness to the Area dose product measurement device and lock it in place.
- Reattach the POWERPHOS cover.

With the laser targeting device:

- Remove the laser targeting device from the POWERPHOS by removing the screws.
- Mount the Area dose product measurement device to the POWERPHOS.
- Reattach the laser targeting device.
- Connect the interface cable already integrated in the cable harness to the Area dose product measurement device and lock it in place.
- Check the laser targeting device according to the adjustment instructions and, if necessary, adjust it.
- Reattach the POWERPHOS cover.

Memoskop Programming

NOTICE

After selecting the "Disable dose display selection in User Set Up" parameter, the "Storage of dose on disk" and "Dose on hardcopy output" parameters become available in the Memoskop User Setup and visible to the customer.

- Turn on the POWERMOBIL/ARCOSKOP and wait for the start-up.
- Insert the Memoskop parameter disk (see System folder Register 10) in drive A of the service PC.
- Start the Memoskop service program.
- Click the "Get from Memoskop" button in the main menu. The parameters are transferred from the Memoskop to the Service PC.
- Select the "Others" menu.
- Select "Disable dose display selection in User Set Up". The Check button is not marked.
- Select "Storage of dose on disk". The Check button is marked.
- Click on the "Back" button. The "Others" window closes.
- Select the "Hardcopy Setup" menu.
- Select "Dose on Hardcopy output". The Check button is marked.
- Click on the "Back" button. The "Hardcopy Setup" window closes.
- Click on the "Put to Memoskop" button in the main menu. The parameters are transferred from the service PC to the Memoskop and saved.
- Select the "File" menu.
- Select the sub-menu "Save" and save the parameters on disk.
- Exit the Memoskop service program.
- Turn the POWERMOBIL/ARCOSKOP off and the on again to reset the serial interface.

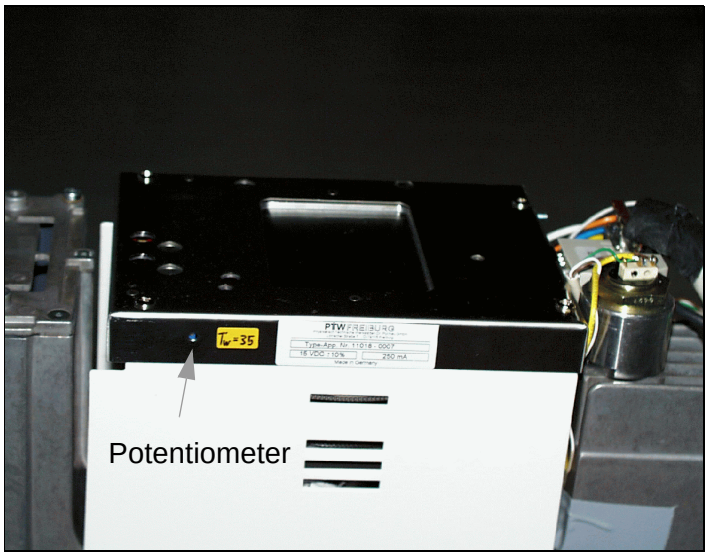

Fig. 1

Calibrating the area dose product measuring device

NOTICE

This adjustment is used to calibrate the area dose product measuring device to the POWERMOBIL/ ARCOSKOP display.

CONSTANT parameters = T_W

- Read and record the T_W value shown on the electronics unit of the area dose product measuring device.

Programming

- Connect the service PC to the serial interface of the POWERMOBIL/ ARCOSKOP.
- Start the service program.
- Select the "Adjustment, Parameter..." menu.
- Select "Diamentor" in the "Parameter Groups" combo box.
- Click on "Get from Unit".
- The parameter "1. Diamentor Existing" must be on YES.
- Select parameter "2. Constant T_W.
- Enter the parameter T_W in the "Value Actual:" field.
- Click on "Set Value".
- Click on "Put to Unit".
- Click on "Save to File".

NOTICE

You must exit the service program with "Logoff" and "Quit" in order to save the modified parameters to diskette as a new file.

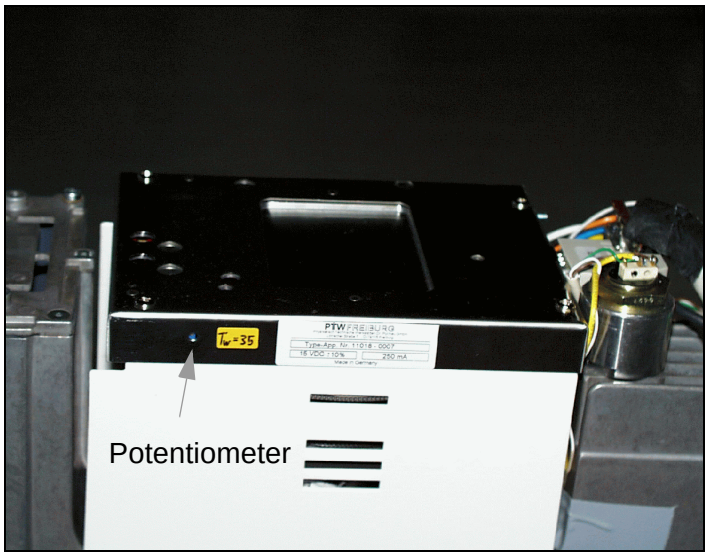

Fig. 2

Checking the programmed value

NOTICE

Checking the programmed values will activate the self-test in the electronics unit of the area dose product measuring device. This serves to recalibrate the electronics unit.

Prerequisites

- The $\mathbf{T_W}$ value is already programmed (see Programming).
- Connect the service PC to the serial interface of the POWERMOBIL/ ARCOSKOP.
- Start the service program. Select the "Adjustment, Calibrations..." menu.
- Answer the query with "Yes".
- Select "Diamentor" in the "Function Group:" combo box.
- In the "Available Functions" window select the line "Start Diamentor Test" and click on "Execute".
- Press the >0< key (reset key for fluoroscopy time). The current value is displayed on the monitor.
- The tested $\mathbf{T_W}$ value is displayed on the monitor of the POWERMOBIL/ ARCOSKOP.
- This value must match the programmed CONSTANT parameter $\mathbf{T_W}$. Tolerance: ± 5 %.
- If the ->0<- key is pressed (reset key for fluoroscopic time) the test is repeated and is displayed again on the monitor.
- The potentiometer (Fig. 2) of the area dose product measuring device can be used to adjust the test value $\mathbf{T_W}$ to the programmed value $\mathbf{T_W}$.
- After the adjustment, select "Stop Diamentor Test" on the service PC and click on "Execute".
- The test is concluded.
- Check the accuracy of the area dose product measuring device (see next page).

Checking the accuracy of the area dose product measuring device

Prerequisites

The calibration of the measuring device must already have been performed.
The X-iris is correctly set; the collimator blades are still just visible on the monitor screen.

Preparations

- Attach the centering cross in the center of the I.I. (Fig. 3).
- Select zoom format.
- Select kV-mA-curve plateau IOD.
- Release fluoroscopy briefly, adjusting the X-Iris on the radiation field to a format of around 15 cm diameter.

NOTICE

The radiation field must cover the entire area of the dose measuring chamber. If necessary, center the dose measuring chamber on the II again.

- Do not make any further adjustments to the X-Iris.
- Record the inner diameter (key width, Fig. 5) of the octagonal area of the radiation field.
- Remove the centering cross.
- Attach the small ($1cm^3$) dose measuring chamber in the center of the I.I. (Fig. 4).

Dose measurement

- Press the "Next Pat" key to reset the area dose product display on the POWERMOBIL/ ARCOSKOP monitor to 0.
- Select kV STOP and set 70 kV.
- Reset the dose measuring device (Dali, Nomex ...) to 0.
- Release fluoroscopy for approx. 20 seconds (~ 3mGy). The measured dose K_E should be high enough that the selected measurement range of the dose measuring device (Dali, Nomex...) is fully utilized; if necessary, reset the area dose product display on the POWERMOBIL/ ARCOSKOP and the dose measuring device and repeat the measurement with a different fluoroscopic time. Select kV-Stop again and set 70 kV.
- Record the measured dose K_E.
- Record the area dose product displayed on the POWERMOBIL/ ARCOSKOP (FDPa).

Calculating the area dose product

- To calculate the measured area dose product: (measured area dose product FDPg) = (measured dose K_E) * (inner diameter d)^2 * 0.829.

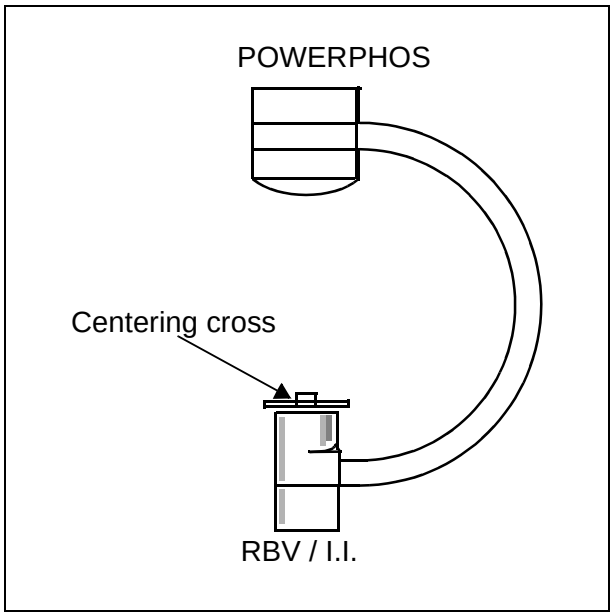

Fig. 3

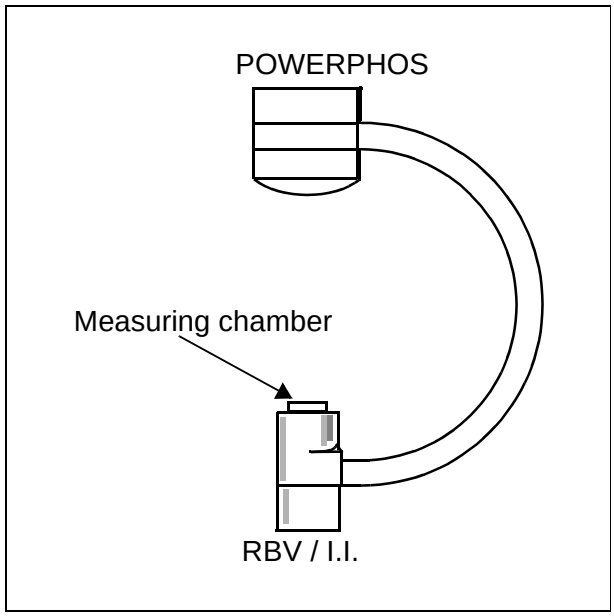

Fig. 4

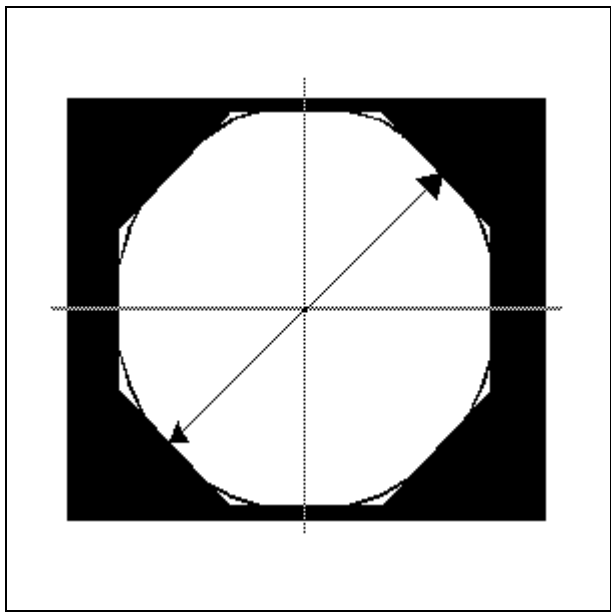

Fig. 5

Evaluation

Calculate the deviation between the measured area dose product and the displayed area dose product:
The deviation must be < 0.3.

Deviation = [(displayed area dose product FDPa) - (measured area dose product FDPg)] / (measured area dose product FDPg).

Concluding steps

- Reinstall all the covers.
- Perform the protective conductor measurement as specified in ARTD-002.731.17.
- Perform partial acceptance tests in compliance with country-specific regulations.

Changes to previous version

Page 4 new

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